

# FINANCIAL RATIO ANALYSIS USED IN THE IT ENTERPRISES

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*In the present paper the authors show the modality of analysing the IT entities using Du Pont method.*

*Key words: Return On Equity, Return On Assets, Leverage*

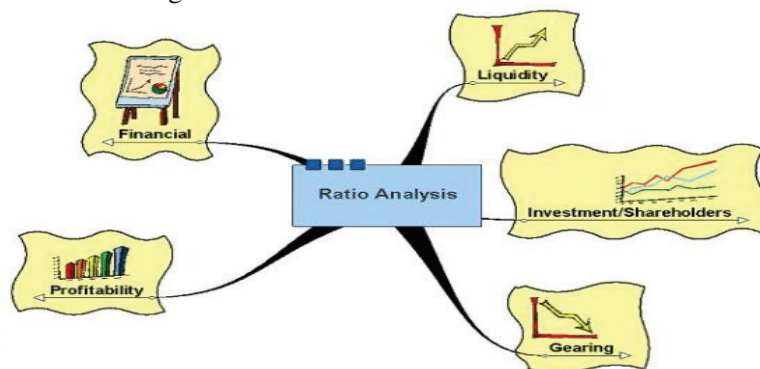
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## 1. Introduction

Ratio analysis is the method or process by which the relationship of items or group of items in the financial statement are computed, determined and presented. Ratio analysis can be used both in trend and static analysis. There are several ratios at the disposal of an analyst but their group of ratio he would prefer depends on the purpose and the objective of analysis.

A ratio “is one figure express in terms of another figure. It is a mathematical yardstick that measures the relationship two figures, which are related to each other and mutually interdependent.”<sup>396</sup> As accounting ratio is an expression relating two figures or accounts or two sets of account heads or group contain in the financial statements.

Ratio is work out to analyze the following aspects of business organization such as: solvency, stability, profitability etc. In the next figure is a depiction of the ratio analysis relationships with specific aspects of business organization.



**Figure 0. Ratio Analysis**

(Source: <http://pakistanmba.jimdo.com/>)

<sup>396</sup> <http://pakistanmba.jimdo.com/>

In interpreting the ratio of a particular firm, the analyst cannot reach any fruitful conclusion unless the calculated ratio is compared with some predetermined standard.

## 2. Case study

Our research is based on the financial information for the I.R.I.S. Group (Belgium), Sybase (USA), Access Commerce (France), BMC Software (USA), Sopheon (Netherlands), Keyware Technologies (Belgium), Lectra (France), Linedata Services (France), Esker (France) and Dassault Systems (France).

All the companies presented in this essay are listed to the New York Stock Exchange, under the technology industry, software and computer service sector.

Financial ratios are usually used to evaluate five aspects of operating performance and financial condition: return on investment, liquidity, profitability, activity and financial leverage. We have applied these ratios to the software cluster, based on financial reports.

In this study we present the financial analysis ratios based on Du Pont System.

The returns on investment ratios give us a “bottom line” on the performance of the cluster, but don’t tell us anything about the “why” behind this performance. For an understanding of the “why”, a method that is useful in examining the source of performance is the Du Pont System<sup>397</sup>. The Du Pont System is a method of breaking down return ratios into their components to determine which areas are responsible for a firm’s performance.

$$ROA = \frac{EBIT}{TotalAsset} = \frac{EBIT}{Sales} * \frac{Sales}{TotalAsset} = ROS * AssetTurnover.$$

Return on sales (ROS) or operating profit margin, indicates the percentage of each sales euro represented by operating income. Asset turnover indicates the number of sales euro produced by each euro invested in operating assets. In the next table is a depiction of the ROA, ROS and asset turnover for the five years of the analysis.

Year	ROA	ROS	Asset Turnover
2004	6,48	11,45	0.5655
2005	4,92	8,53	0.5766
2006	6,66	11,69	0.5701
2007	7,71	14,27	0.5405
2008	8,85	15,61	0.5671

**Table 0-1 Return on Asset’s Components**

We can see that although the asset turnover increased from 2004 to 2008 (from 0.5655 to 0.5671), ROS increased (from 11,45% to 15,61%) and the ROA increased a lot (from 6,48% to 8,85%).

The return on assets ratio that uses net income can be broken down into its components in a

similar manner:  $ROA = \frac{NetIncome}{Sales} * \frac{Sales}{TotalAsset} = NetProfitMargin * AssetTurnover$

We can relate the basic earning power ratio to the return on assets, recognizing that:<sup>398</sup>

Net Income=Earnings Before Tax\*(1-Tax Rate).

It results that:

$$NetIncome = EBIT * \frac{EarningsBeforeTax}{EBIT} * (1 - TaxRate). \text{ Therefore, we can say that:}$$

Net Income=EBIT\*Equity’s Share of Earnings\*Tax Retention%.

<sup>397</sup> This method of analyzing return ratios in terms of profit margin and turnover ratios, referred to as the Du Pont System, is credited to the E.I. Du Pont Corporation, whose management developed a system of breaking down return ratios into their components. This is due to American Management Association, *Executive Committee Control Charts*, AMA Management Bulletin No. 6, 1960, p. 22

<sup>398</sup> Frank J. Fabozzi, Pamela P. Peterson, **Financial Management and Analysis**, Second Edition, John Wiley & Sons, Inc., Hoboken, New Jersey, 2003, p. 727

Going back to ROA, we will obtain the following expression:

$$ROA = \frac{EBIT}{Sales} * \frac{Sales}{TotalAssets} * \frac{EarningsBeforeTax}{EBIT} * (1 - TaxRate)$$

Therefore, we can say that:  
 $ROA = ROS * Asset\ Turnover * Equity's\ Share\ of\ Earnings * Tax\ Retention$ .

The breakdown of a return-on-equity ratio requires a bit more decomposition:

$$ROE = \frac{NetIncome}{Shareholders' Equity} \text{ and } ROA = \frac{NetIncome}{TotalAssets}$$

It results that:

$$ROE = ROA * \frac{TotalAssets}{Shareholders' Equity}$$

The ratio of total assets to shareholders' equity is referred to as the equity multiplier. The equity multiplier, therefore, captures the effects of how a company finances its assets, referred to as its financial leverage.

$ROE = ROA * (Equity\ Multiplier\ or\ Financial\ Leverage)$ .

$$ROE = \frac{NetIncome}{Sales} * \frac{Sales}{TotalAssets} * \frac{TotalAssets}{Shareholders' Equity}$$

It results that:

**$ROE = Net\ profit\ Margin * Asset\ Turnover * Equity\ Multiplier$ .**

Applying this break down (of ROE) to the software cluster, it results the next table:

Year	ROE	Net Profit Margin	Asset Turnover	Financial Leverage or Equity Multiplier
2004	8,74	8.46	0.5655	1.8275
2005	7,59	6.77	0.5766	1.9436
2006	11,27	9.38	0.5701	2.1058
2007	11,84	9.90	0.5405	2.2134
2008	15,50	12.28	0.5671	2.2269

**Table 0-2 Return on Equity's Components**

Considering the above mentioned break down on, we calculated ROE by using its components, to determine which areas are responsible for the increase/decrease of ROE.

We see that although the asset turnover increased (from 56,55% in 2004 to 56,71% in 2008) and although the use of financial leverage increased also (from 1,82 in 2004 to 2,22 in 2008), net profit margin also increased (from 8,46% in 2005 to 12,28% in 2008), and the return on equity also increased from 8,74% in 2005 to 15,50% in 2008).

### 3. Conclusions

Looking at the calculated financial ratios, in conjunction with industry and economic data, we can make judgments about past and future financial performance and condition.

On the other hand, the Du Pont system breaks down return ratios into their profit margin and activity ratios, allowing us to analyze changes in return on investments.

These ratios are related closely to a firm's operating cycle, which tells us how long it takes a firm to turn its investment in current assets back into cash.

Profitability ratios tell us how well a firm manages its assets, typically in terms of the proportion of revenues that are left over after expenses.

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